(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 14 July 2005 (14.07.2005)

PCT

$\begin{array}{c} \textbf{(10) International Publication Number} \\ \textbf{WO 2005/063358 \ A3} \end{array}$

(51) International Patent Classification⁷: **B01D 35/027**, 35/153, 35/147

(21) International Application Number:

PCT/US2004/043227

(22) International Filing Date:

21 December 2004 (21.12.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/532,761

22 December 2003 (22.12.2003) US

(71) Applicant (for all designated States except US): DON-ALDSON COMPANY, INC. [US/US]; 1400 West 94th Street, P.O. Box 1299, Minneapolis, MN 55440-1299 (US).

(72) Inventors; and

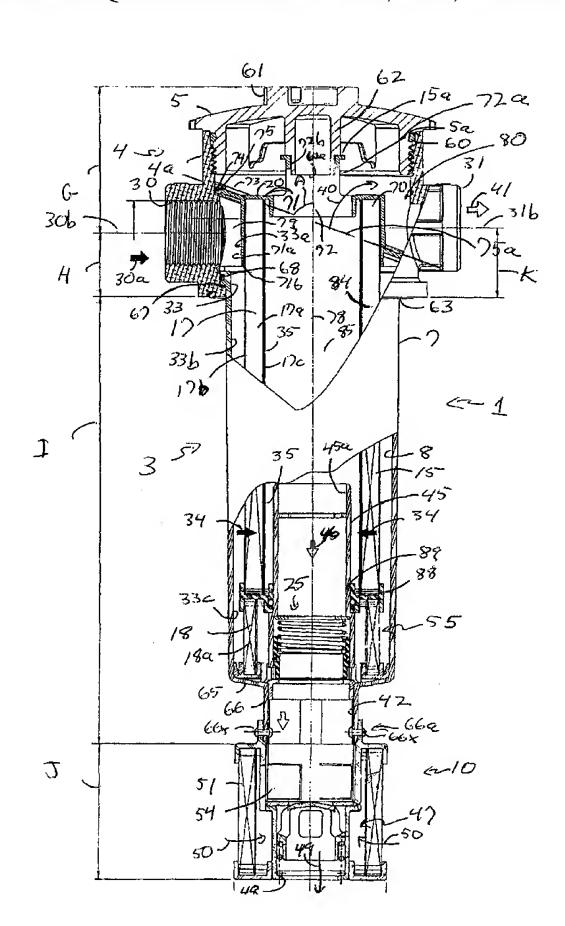
(75) Inventors/Applicants (for US only): SCHIAVON, Angelo [IT/IT]; Via Pastrengo, 4/A, I-46025 Possio Rusco

(IT). **CANTONI, Mauro** [IT/IT]; Vicolo Ducale, 11, I-46100 Mantova (IT). **ZANETTIN, Andrey** [IT/IT]; Via Amendola, 8, I-46035 Ostiglia (IT). **FORMICA, Claudio** [IT/IT]; F. Cavallotti, 24, I-46030 Pomponesco (IT).

- (74) Agent: BRUESS, Steven, C.; Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: LIQUID FILTER ASSEMBLY; AND, METHODS



(57) Abstract: A liquid filter assembly is provided. The preferred assembly includes a serviceable filter cartridge having a primary filter section and a secondary or bypass filter section. The preferred assembly includes a bypass valve arrangement and a suction filter arrangement. The suction filter arrangement preferably includes a dimensionally biased valve arrangement, preferably one which is devoid of a helical coiled spring, to control flow through the suction filter. A flow/pressure regulation valve, to allow flow from an interior of the assembly to a reservoir if needed, is preferably provided. Preferred serviceable filter cartridges are shown.



WO 2005/063358 A3

WO 2005/063358 A3



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 25 August 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.